

AU/ACSC/080/1998-04

AIR COMMAND AND STAFF COLLEGE

AIR UNIVERSITY

POLITICS, DOCTRINE, AND THE AIRMAN

by

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A Research Report Submitted to the Faculty

In Partial Fulfillment of the Graduation Requirements

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Maxwell Air Force Base, Alabama

April 1998

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.					
1. REPORT DATE (DD-MM-YYYY) 01-04-1998		2. REPORT TYPE Thesis		3. DATES COVERED (FROM - TO) xx-xx-1998 to xx-xx-1998	
4. TITLE AND SUBTITLE Politics, Doctrine, and the Airman Unclassified				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Doucette, John W. ;				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME AND ADDRESS Air Command and Staff College Maxwell AFB, AL36112				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME AND ADDRESS ,				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT APUBLIC RELEASE ,					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT As airmen, we must understand that we do not operate unaffected by forceful personalities or agendas, free to dictate the methods and the machines that will win the day. Simply put, politics affects service doctrine development. Other services jockeying for missions and monies, events outside of our control, and forceful personalities all contribute to the final picture for a service's doctrine. Within the Air Force, we credit key leaders and thinkers at the Air Corps Tactical School (ACTS) with developing and codifying the strategic bombardment theory used during World War II. An interesting question is how did political forces of the day play into the development of this theory? This is not an attempt to rewrite the methodology used in the formulation of the industrial web theory, rather it is an attempt to focus on the politics of three significant events that influenced development of Air Corps doctrine toward strategic bombing: the fight for and obtainment of coastal defense as an Army mission; the delivery of domestic mail in 1934; and the development at ACTS of the belief in the power of the bomber. Once we look at these key events and their underlying politics, we will understand how personalities and politics shaped decisions leading to the strategic bombing theory. From this point of understanding, this paper will present a comparison between the interwar years prior to WWII and our present timeframe. Based on similarities between the two time periods, we will look at recommendations for Air and Space doctrine development for the future. In order to see each of these events clearly, many sources for this paper came from the archives of the Air Force Historical Research Agency. Invaluable in their content, the plethora of boxes containing original letters, directives, and oral interviews were priceless in piecing together some of the personal interplay. Additionally, the Fairchild Library contained much of the source documentation for the legislative acts, hearings and laws. To the complete picture, numerous PhD papers and historical studies were used to corroborate information and chronology. For convenience, the Appendix lists and describes the significant hearings, boards and legislation that affected the growing Air Service (Corps.)					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19. NAME OF RESPONSIBLE PERSON
			Public Release	61	Fenster, Lynn lfenster@dtic.mil
a. REPORT Unclassified	b. ABSTRACT Unclassified	c. THIS PAGE Unclassified	19b. TELEPHONE NUMBER International Area Code Area Code Telephone Number 703767-9007 DSN 427-9007		
					Standard Form 298 (Rev. 8-98) Prescribed by ANSI Std Z39.18

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Preface

After World War I, pursuit was king of air operations. Consider the campaign of St. Mihiel orchestrated by Colonel William Mitchell during World War I. This campaign involved nearly 1500 aircraft from American and French units. Central to the success of this campaign was Mitchell's concept for achieving air superiority, which gave relief to the ground troops and allowed observation to go aloft.¹ Twenty-five years later, America entered World War II in Europe armed with the strategic bombing theory and a host of bombers. From the first B-17 bomber mission on 17 August 1942,² it took almost a year and a half, and severe bomber loss rates, for Army leaders to demand fighter escort for the strategic attack missions in order to reduce friendly losses, and to attrit the German Air Force. Why did we place so many crews and assets at risk with a doctrine of unescorted bomber operations? How could we enter a war of this magnitude and disregard the lessons of the past? To answer these questions, I turned to my coursework in Air Command and Staff College (ACSC.)

At ACSC, I learned about the strategic bombing theory of World War II and how the talented air leaders at Air Corps Tactical School devised the industrial web theory.³ But I couldn't fully answer the question of how we made the leap from a balanced air approach campaign (one with fighters and bombers working in concert) to strictly strategic bombing. I wanted to know more of the *politics* behind the selection of the bomber as the primary means/airplane for America's airpower hopes. Not just the politics as in

“beltway lobbying” and Congressional involvement, but politics as in competing for resources in a time of scarce funding; politics in establishing legitimacy as a viable military service; politics of airmen struggling to determine how best to use the airplane, and which type, as a military instrument.

What I try to do in this paper is tell a little of the story and add to the already known events of the time to make the explanation of the development of the strategic bombardment theory more robust. This paper looks at three events: the Air Service’s (Corps’) struggle to gain a mission and its rivalry with the Navy in doing so, the air mail event of 1934, and the battle of wills within the Air Corps to define a warfighting doctrine. The politics of the personalities and organizations involved in each of these events contributed to focusing the Air Corps on its strategic bombardment theory. Once we look at these key events and their underlying politics, the paper compares the interwar years prior to WWII and our present timeframe. Finally, based on similarities between the two time periods, I offer recommendations for Air and Space doctrine development for the future. Hopefully, this paper better illustrates this contextual side of the story, and perhaps gives airmen of today concepts to consider as we develop our air and space force doctrine for the 21st century.

But the paper didn’t write itself. When I initially attempted to nail down my topic, my radar was in wide scope, long-range search. I was extremely fortunate to have an enthusiastic and VERY focused Faculty Research Advisor, Patricia Battles. With her guidance and patient advice, I was able to convert an absolute hodge-podge of ideas into a reasonable topic for research. With her continued patience, I was able to bring the topic to life in this paper. For this I am deeply grateful.

More importantly however, my wife, Janette, was my sounding board, my “common sense test,” and the English teacher for whom I’d always wished. For that, I am even more grateful.

Abstract

As airmen, we must understand that we do not operate unaffected by forceful personalities or agendas, free to dictate the methods and the machines that will win the day. Simply put, politics affects service doctrine development. Other services jockeying for missions and monies, events outside of our control, and forceful personalities all contribute to the final picture for a service's doctrine. Within the Air Force, we credit key leaders and thinkers at the Air Corps Tactical School (ACTS) with developing and codifying the strategic bombardment theory used during World War II. An interesting question is how did political forces of the day play into the development of this theory? This is not an attempt to rewrite the methodology used in the formulation of the industrial web theory, rather it is an attempt to focus on the politics of three significant events that influenced development of Air Corps doctrine toward strategic bombing: the fight for and obtainment of coastal defense as an Army mission; the delivery of domestic mail in 1934; and the development at ACTS of the belief in the power of the bomber.

Once we look at these key events and their underlying politics, we will understand how personalities and politics shaped decisions leading to the strategic bombing theory. From this point of understanding, this paper will present a comparison between the interwar years prior to WWII and our present timeframe. Based on similarities between the two time periods, we will look at recommendations for Air and Space doctrine development for the future.

In order to see each of these events clearly, many sources for this paper came from the archives of the Air Force Historical Research Agency. Invaluable in their content, the plethora of boxes containing original letters, directives, and oral interviews were priceless in piecing together some of the personal interplay. Additionally, the Fairchild Library contained much of the source documentation for the legislative acts, hearings and laws. To the complete picture, numerous PhD papers and historical studies were used to corroborate information and chronology. For convenience, the Appendix lists and describes the significant hearings, boards and legislation that affected the growing Air Service (Corps.)

Notes

¹ Emile Gauvreau and Lester Cohen, *Billy Mitchell: Founder of our Air Force and Prophet without Honor* (New York, NY.: E.P. Dutton & Co., Inc., 1942), 24-27.

² *The Early Operations of the Eighth Air Force and the Origins of the Combined Bomber Offensive* (Maxwell AFB, AL.: AAF Historical Office, October 1946), 19.

³ Major H. Dwight Griffin, et. al., *Air Corps Tactical School: The Untold Story* (Maxwell AFB, AL.: Air Command and Staff College, May 1995), 21-43.

Chapter 1

Politics and the Military

Politics—Not Just for Congress

When most of us hear the term “politics”, we naturally think of state, national or even international government relations and activities. In fact, politics as defined by Webster’s dictionary can also mean “competition between competing interest groups or individuals for power or leadership.”¹ This power and leadership takes the form of many tangible and intangible forms such as securing promotions, obtaining positions which wield influence, and even gaining support for a particular belief or method for accomplishing a task. As the Air Corps came of age during the interwar years of 1919-1939, this type of politics played a major role in determining the compositions of its forces, and in helping to formulate its strategic bombing doctrine for World War II in Europe. Airmen of the day faced many types of political challenges, each of them affecting development of doctrine. All of these political engagements helped define the role, the type aircraft, and the doctrine for the Air Corps to focus on, which eventually led to the development of its strategic bombing plan for WWII in Europe.

Significant Events Shape Doctrine

During the interwar years, the Army and the Navy competed fiercely for an aviation mission and for the financial resources to make that mission happen. The players involved in this continuous struggle included individuals (Generals Mitchell, Patrick, Foulois and MacArthur—to name only a few) and organizations (the Departments of War and Navy, the separate military services, and the Air Corps Tactical School.) Each of these individuals and organizations held very distinct, and in some cases very contrasting opinions about the capability and the future of airpower. This paper looks at three specific political events which involved the various agencies and individuals during this time. The results of these events greatly influenced aircraft choice and the direction of doctrine for the Air Corps.

To highlight the competition between military services, we will examine the rivalry between the Army Air Service (and later Air Corps) and the Navy as they competed for the coastal defense mission. Obtaining this mission was crucial in establishing funding, requirements, basing justification and credibility. We will examine how the Air Corps established itself as a viable combat arm and obtained complete control of this mission.

A second formative event was President Roosevelt's decision to have the Air Corps deliver the US mail. This decision forced the Air Corps to assume a duty for which they were wholly unprepared, both in terms of equipment and training. Subsequent effects on aircraft priority and funding allowed the air leaders to proceed with procurement of their much-desired bombers.

Finally, we'll look at the personal interplay involved within the Air Corps as outspoken professionals within the Corps tried to define air doctrine. Powerful

personalities advocated completely opposite points of view with respect to the use of fighters and bombers. Fighter proponents, led by the very focused Claire Chennault (of the “Flying Tigers” fame) pushed the pursuit fighter.² On the other end of the spectrum, the bomber advocates, led by the likes of Larry Kuter, George Walker and Haywood Hansell, maintained that the bomber was key to destroying an enemy and it would “always get through.”³ Certainly there were opinions more moderate, but none were more vocal than these fiercely competitive airmen pushing a new doctrine for a new and formidable weapon. As we explore this internal development struggle for doctrine, we will briefly assess its success by examining the final product of this internal battle—Air War Plans Division Plan 1 (AWPD/1.)

None of these events by themselves forced the Air Corps to develop the air doctrine used in World War II. However, central to the thesis of this paper is that in combination, these significant events drove the Air Corps inevitably to developing strategic bombardment as the primary method for employing aviation as a combat asset. To develop this thesis, this paper will use the following roadmap for each of the major sections.

Army-Navy Rivalry and the Coastal Defense Mission

For the Army-Navy mission/funding rivalry, the main points are:

1. The Army Air Service (Corps) needed a mission to justify its existence post WWI because of the national drawdown and lack of military funding.
2. Air Corps existence required legitimacy as a combat capability in the eyes of the public and Congress so that it could assume a significant peacetime military mission.
3. The Air Corps and the Navy competed for defense of the coast (required the Air Corps to have the capability to fly long ranges and drop ordnance, i.e, a long-range bomber.)

The result of the Army-Navy competition was the Army Air Corp earned the primary mission of coastal defense. By default, the Army needed to develop the capability to launch from the coast, potentially fly hundreds of miles, and drop a large enough payload to deter/destroy any threat emerging from the sea (battleship, carrier or otherwise.) This event allowed the Air Corp to develop long-range bomber aircraft, tactics and logistical requirements.

The Air Corps carries the US Mail

For the air mail event, the main points are:

1. President Roosevelt required Army Air Corps aviation to carry the US mail.
2. Disastrous results highlighted deficiencies in Air Corps equipment and training.

The results of the disastrous air mail operations forced accelerated production of the B-10 (to get it into the air mail delivering business) which put emphasis on bomber production, and brought this aircraft on the military scene. Also, to avoid another failure such as the air mail operations, the government approved virtually all of future appropriation requests, allowing the Air Corps to concentrate on building its bomber fleet.

Airpower Advocates: Pursuit vs Bombing

For the personal interplay within the Air Corps, the main points are:

1. Early theorists such as Trenchard, Douhet, Caproni influenced the Air Corps thinkers.⁴
2. Originally, there was a balanced approach to doctrine development (pursuit, attack and bombardment each held a place in tactics.)
3. Powerful proponents for bombardment overwhelm proponents for pursuit doctrine at Air Corps Tactical School (ACTS).

The result of this fluid doctrinal development was that there was a significant shift from the balanced doctrine approach to strategic bombardment. This shift can be

attributed to a few forceful personalities within the Air Corps such as Majors Kuter, Walker and Hansell.⁵ These key personalities took advantage of the fact that bomber aircraft of the day were more capable than the fighter and pushed the strategic bombing doctrine as the key to winning the next war.

All of these events produced an effect on the process of doctrine development, each a political product of struggles for organizational survival, events of the time, and personalities. This paper will cover each event in detail so the reader will see why the process ended in the decisions it did, and also see the politics which led to each event's occurrence. From this discussion, we'll look at recommendations for the present, and future, as we continue to develop our aerospace doctrine for the 21st century.

Notes

¹ *Webster's Third New International Dictionary* (Merriam-Webster, Incorporated, 1993), 1755.

² Martha Byrd, *Chennault: Giving Wings to the Tiger* (University, AL.: University of Alabama Press, 1987.)

³ Stanley Baldwin to House of Commons, 10 November 1932. In Tami Davis Biddle, "British and American Approaches to Strategic Bombing: Their Origins and Implementation in the World War II Combined Bomber Offensive," *War Theory Coursebook* (Maxwell AFB, AL.: Air Command and Staff College, September 1997), 274.

⁴ The Bolling Mission (see the Appendix) was a prime opportunity for these early thinkers to exchange ideas about aircraft and employment of air forces. An excellent account of exchange of ideas is in a collection of letters and telegrams by Caproni (Memorandum for Director, Research Studies Institute, subject: Research visit to the Caproni Museum in Rome, and to Paris on matters of interest to the Air Force, 24 April 1957, AFHRA: 168.661)

⁵ Laurence S. Kuter, transcript of oral history interview by Thomas A. Storm and Hugh N. Ahmann, 30 September-3 October 1974, 111, AFHRA K239.0512-810.

Chapter 2

Establishing Legitimacy, and Competition for the Coastal Defense Mission

Post WWI Environment

The nation, recoiling from the horrors of World War I, transitioned to demobilization and started drawing down the military. The war was over, families wanted to be reunited, and national leaders wanted to reduce our standing military forces. The demobilization was swift. Indeed, mere hours after the armistice had been signed, the War Department cabled General John Pershing, commander of the American Expeditionary Force that “all draft calls and special inductions into the service have been cancelled,” and that “Sunday work and overtime work in production for the Army, Navy and shipping contracts have been stopped.”¹ The “Great War” was over, and the public, along with elected officials, did not see another war in the immediate future for the US. The question now was what role would airpower play in peacetime.

Although the Army employed airplanes in WWI, and the swirling dogfights of Sopwith Camels and Fokkers over the Western Front were tales passed along at the matinee,² the general public, government and military did not know how or where the airplane should fit in a peacetime world. For the most part, public opinion of the aircraft was skeptical, unsure of what to make of these flying beasts. Benjamin Foulois recounts

that many bible societies “got after the men flying those machines”—more concerned about them flying on Sunday than seeing the airplane reach its potential.³ Gorrell and Mitchell addressed the potential of the aircraft as a military machine, but converting those ideas into peacetime would prove difficult at best.⁴

During this time, Air Service missions were border patrol and observation within the US, with three additional locations for operations outside the US in Manila, Honolulu and the Panama Canal Zone. But if the Air Service was to survive and grow, they not only needed to continue to push for more roles and missions to justify their existence, but at the same time, prove their claims for the need of a strong air force. Over the course of the next two decades, competition with the Navy for the mission of coast defense forced both services to participate in publicity events aimed at increasing the awareness of the capabilities of the airplane to the public, Congress, and even some leaders in the Army. In this regard, though many others played a very significant and perhaps more mature role, General Billy Mitchell was US airpower’s most vocal proponent in attempting to create positive sentiment for the aircraft and its potential.

Gaining Public Support with Staged Events

An early attempt by Mitchell to draw attention to the airplane was the Transcontinental Reliability Race held in October 1919.^{*} As the first event of its kind, it challenged participants to fly from the east coast, to the west coast, and back again. The range of the trip was obviously beyond the range of the aircraft, so aviators made as many as forty refueling stops during the thirty-nine hour trip. Far from just capturing the public attention, it captured the support of Congress to develop a national airway system.⁵ Capitalizing on the publicity this air race engendered, even though there were nine fatal

crashes during the event, Mitchell had begun the public crusade for advocating airpower and its necessary support in the US.⁶

Mitchell enlivened the debate in the press by offering to exhibit airpower against a naval vessel and sink a battleship.* The Army Air Service received its chance to prove its capabilities in the summer of 1921 and General Mitchell's First Provisional Brigade sunk the *Ostfriesland* with 2,000-pound bombs.⁸ Politically, the success of Mitchell's bombing was not good press for the Navy. The Navy was constructing six additional battleships, and major world powers would be attending the upcoming Washington Conference for the Limitations of Naval Armaments—the last thing they needed was for US naval supremacy to be contested based on losing a battleship to an aircraft.⁹ Consequently, the official report issued by the Joint Board concluded that the bombing tests had been inconclusive insofar as the role of the battleship was concerned.¹⁰ However, Mitchell's personal report of the *Ostfriesland* bombing test 'found' its way to the press, and in the eyes of the public, this feat added credence to the claim of airpower's destructive capability against seaborne threats.**

In its continued quest for publicity, the Air Service displayed its machines and capabilities at every opportunity possible. Four specially built Douglas biplanes and their intrepid crews attempted a Round-the-World flight in April 1923. One hundred and seventy-five days after they launched from Seattle, the *Chicago*, *New Orleans* and *Boston II* (the original *Boston* having crashed in the Atlantic) landed to the hearty welcome of a fascinated public, and each of the crews received medals from President Coolidge.¹¹ A few years later, from December 1926 to May 1927, five aircraft participated in the Pan American Goodwill Flight. Though simple in its intent, this event fulfilled political goals

for many players. The Pan American flight gave the newly designated Air Corps needed publicity and a chance to work important maintenance issues while deploying. It also allowed the US to show the flag to the twenty-three Central and South American countries selected for stopovers.

Continuing in displays of duration and range, Tooey Spaatz commanded the aircraft *Question Mark* in 1929 to prove the capability to refuel while flying. The *Question Mark* stayed aloft for six days, logged over eleven thousand miles and refueled more than forty times (nine times at night.)¹² The flight of the *Question Mark* made the world even smaller for the airmen. Courageous aviators proved the endurance of men and machines, and made the concept of flying to far off, distant targets with bombers seem attainable. If the flight of the *Question Mark* highlighted the courage and ingenuity of individuals, the annual Air Corp maneuvers of May 1931 highlighted the discipline of many.

The Air Corps had staged annual exercises for the three years leading up to the 1931 maneuvers, but these were to be the largest yet. Over 650 aircraft operated out of Wright Field near Dayton. The purpose of the air maneuvers was to “defend” the major cities in the Great Lakes region and along the Atlantic Coast from mock attacks. The massive formations of aircraft stretched for twenty miles long and provided an impressive armada for public viewing. Perhaps most impressive was that the armada logged over thirty-five thousand hours flying during the two weeks of the exercises, with over six hundred aircraft airborne at times, and not one serious mishap occurred.¹³

The Air Corps participated in many more demonstrations than those listed, all in an effort to gain the confidence of the public, Congress, and service leadership. Not every

demonstration went perfectly. Yet through all of these events, the Air Corps gained legitimacy and proved it could operate across long distances over land or water, validating its airpower projection capability. During these times of staged events, the debate on service roles and appropriations continued at the national level.

Legislation Affecting Air Corps Development

During the interwar years, numerous bills were proposed and investigative groups assembled to determine the direction for the Air Service. Though not implemented, the Crowell Board delivered the first official recommendation to make the air arm a separate national service in April 1919.¹⁴ It wasn't until Congress passed the National Defense Act of 1920 that airmen gained official recognition.¹⁵ This Act established the Air Service as a combat arm of the Army, but it was a far cry from being a separate service.¹⁶

In a later attempt to define roles for the Air Service, the Lassiter Board in 1923 recommended dividing the air arm by tasks: pursuit, attack, bombardment and observation.¹⁷ In addition, the board recommended a clear division between the Army and Navy for coastal defense. Again though, the issues came down to money.* Because Congress had not dictated which service owned the coastal defense mission for the nation, the services jockeyed for what they thought was their mission. Therefore, though the War Department and GHQ accepted the Lassiter recommendations, implementing them meant reducing Navy appropriations to upgrade Army aviation. The Navy would have none of that—therefore the recommendations languished, and eventually died.¹⁹ Similar political posturing occurred between the branches of government during the hearings leading up to the Air Corps Act of 1926.*

In 1924, the Speaker of the House appointed the Lampert Committee to inquire into the operations of the US aviation (both commercial and military.)²⁰ The lengthy hearings seemed to favor the general position of air proponents, and critics of this committee contended the hearings did not demand appropriate substantiation and facts.²¹ While the Lampert hearings were in progress, and perhaps wishing to deflate the anticipated Lampert Committee results, President Coolidge commissioned his own Aircraft Board (Morrow Board) to investigate the question of creating an independent air force.²² The President recruited the members of the Morrow Board from civilian ranks, sparking the New York Times to write, “for the first time...a President has failed to entrust a defense problem to those serving him in his capacity of Commander-in-Chief.”²³ In the end, all involved believed the Morrow Board would provide a fair assessment,²⁴ but these separate, concurrent boards highlighted competition between the Congress and the Executive branch over the future of aviation.

Once complete, the Morrow Board findings laid the foundation for the 1926 Air Corps Act, and made a significant statement when it denied that strategic bombing could break the will of the people during war.²⁵ This statement implied the Air Corps would not develop a strategic bombing campaign to make the enemy capitulate. Fortunately, Congress finally passed the Air Corps Act of 1926, which left Army aviation under GHQ control (no independent air arm), but renamed it the Army Air Corps. In addition, it authorized a five-year expansion program for both personnel and aircraft.²⁶ Unfortunately, the President delayed the start of the program until fiscal year 1928: funds were not appropriated over the next five years to complete the expansion program, and the increase in personnel for the Air Corps needed to be taken from other Army branches.

What appeared to be supportive words on paper resulted in little material support for the Air Corps to truly expand.

The Army-Navy Struggle for Coastal Defense Mission

Over the next five years, the Air Corps fought tenaciously for its coastal defense mission, all the while trying to fend off the Navy as it apparently tried to assume the same duties. The Navy had been progressively stationing more of its aviation assets on the shore, and seemed intent on winning the coastal defense battle. With longer range aircraft possessing increased striking power, Admiral Moffet suggested in 1930 that carrier based aircraft could strike enemy cities and bases long before a sea-borne invasion could be undertaken, perhaps indicating the Navy's supremacy over all aviation activities over water.²⁷ In fact, as early as 1919 Lt Cdr (USN) Bartlett advocated the importance of naval aviation and the role airpower should play as part of the Navy.²⁸ Comments such as these only fueled the debate, and without the coastal defense mission, Air Corps planes would be forced further inland. Air Corps Chief General Patrick feared they might be dropped from any strategic attack role.

The results of the Joint Army-Navy Board of 1928 seemed to settle the dispute when it agreed that neither service should try to dictate the other service's development and procurement of planes necessary to accomplish its mission.²⁹ In effect, it allowed each service to avoid the other, but didn't clearly define what "mission" each service would accomplish. Understandably, this compromise was short-lived, and the Army and Navy contention for the coastal mission roared to the top of their respective agendas. The Navy, in an attempt to prove the potential of its aviation, staged a mock air attack against Panama during their summer maneuvers of 1929.³⁰ The staged attack, launched from

carriers into the Panama Canal Zone, was a huge success for the Navy. It appeared to give credence to the Navy contention for the need of aircraft carriers, not the Army's shore based aircraft, to defend the coastlines of the US because the carriers would be able to intercept airborne threats further out to sea before they would be able to attack. The Air Corps' fight for a coastal defense mission was now truly becoming a struggle for its very existence. What finally broke the deadlock was the involvement of newly appointed heads of the Army and Navy, General MacArthur and Admiral Pratt, respectively.

As the new Chief of Naval Operations, Admiral Pratt emphasized fleet operations and aviation capability from the carriers in the open seas.* Perhaps with his leadership it was easier for he and General MacArthur to sit down and craft out an agreement in January 1931 which clearly defined the roles of the services as pertained to coastal defense. The MacArthur-Pratt agreement kept navy air with the fleet to perform primary fleet missions, and gave the army the mission of coastal defense at home and abroad.³¹ The key statement being, "thus assuring the fleet absolute freedom of action without any responsibility for coast defense."³²

With this statement, crafted by the ability of the senior leaders of the Navy and the Army to reach an agreement, the Air Corps now had a clear, unambiguous mission: defense of the US coast. The coastal defense mission gave leaders within the Air Corps an opportunity to develop tactics, procedures and to refine requirements for long range bombing aircraft which would fully support the mission of defending the coastline. Over the next few years, the Air Corps would plan, organize and attempt to equip based on this mission.

Summary: Competition and the Struggle for a Mission

The Army and the Navy each faced drastic cuts in funding after World War I. The fledgling Army Air Service desperately needed a *raison d'être* in order to expand. Both services showcased their men and machines as they competed for recognition to secure portions of the ever-dwindling military budget. Aviators in the Air Service, and later Air Corps, shared a vision for the potential of the aircraft and pushed their way into the public consciousness, thus legitimizing their existence.

On the legislative front, significant political posturing for the role of airpower pitted various congressional groups against one another. Along with that, senior Air Corps leaders doggedly pursued a formal statement acknowledging the Army's claim to the coastal defense mission. As capabilities improved in both services, it was difficult to prove the Army had an inherent, asymmetric advantage over the Navy in this regard. It was not until the two service leaders, MacArthur and Pratt, used their foresight and personal relationship to cement an agreement granting this mission to the Army.

With this mission in hand, the Army Air Corps forged ahead with detailing the type of aircraft best suited for the long-range bombing missions. The Air Corps pushed for aircraft such as the B-9 and B-10, but even though Congress passed the Air Corps Act of 1926, as 1934 approached, the Air Corps still operated obsolete and inadequate equipment. This state of the fleet proved to be key during the Air Mail operation of 1934.

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¹ James P. Tate, *The Army and its Air Corps: A Study of the Evolution of the Army Policy Towards Aviation, 1919-1941* (Department of History, Indiana University, 1976), 2.

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² Benjamin Franklin Cooling, *Air Superiority* (Washington DC.: Center for Air Force History, 1994), 3. Also, one of the first movies to idolize the exploits of the airmen over the Western Front was “Wings”, immensely popular because “not only does he [the audience] see how the Airman combats his foe above the clouds, but also how he strafes the troops on the ground.” (“When War-Planes Flame and Audiences Gasp,” *The Literary Digest*, Vol. XCV, no. 7 (12 November 1925): 36-38.

³ General Benjamin D. Foulois, transcript of oral history interview by Dr. Alfred Goldberg, Dec 1965, 20, AFHRA, K239.0512-766.

⁴ Edgar S. Gorrell, “An American Proposal for Strategic Bombing”, *The Airpower Historian*, Vol V, no. 2 (April 1958) & William Mitchell, *Winged Defense*.

* Mitchell understood the need to test the Air Service which had lost a large percentage of experienced personnel and which was operating with obsolete equipment. The Reliability Race was more than just an opportunity to showcase aviation, it subjected the entire Air Service, from organization to supply, to a test of ability and allowed leaders of the Air Service to scrutinize their force (Maurer, 29-36.)

⁵ DeWitt S. Copp, *A Few Great Captains* (New York: Doubleday & Co., 1980), 28.

⁶ As he gained attention, Mitchell preached the importance of airpower over the use of naval power for the defense of the nation coastlines. A key point central to Mitchell’s case for advocating air forces was the one thing which plagued the entire military: lack of funding for defense. He contended that the future threat to the US would be from the air, perhaps ferried close by sea-faring vessels, and the only way to defend the nation from that threat would be by using the airplane. In terms of cost, he projected that the government could buy one thousand aircraft for the amount it would take to construct one battleship. See Major Alfred F. Hurley, *Billy Mitchell* (New York: Franklin Watts, Inc., 1964) 126, and Brig-Gen William Mitchell, “Air Power vs Sea Power,” *The American Review of Reviews*, March 1921, 273-277. Mitchell contended that a battleship cost \$40,000,000 whereas a more combat capable aircraft cost on \$40,000.

* Although the Navy stated it could not be done, they attempted to disprove this for themselves and conducted their own secret bombing tests on an old battleship, the *Indiana*. Since the *Indiana* was not sunk, The results were published as proof positive that a modern battleship could not be deterred by aerial attack, even though the Navy only scored an eleven percent hit rate (Tate, 23.)

⁸ For two very contrasting accounts of the incident see William Mitchell’s account in *Winged Defense*, 66-75 and Cyril Moran’s account, “Sea-Power: The Senate and the Air”, *United States Naval Institute Proceedings*, No. 225, November 1921.

⁹ Harry H. Ransom, *The Air Corps Act of 1926: A Study of the Legislative Process* (PhD. diss., Princeton University, August 1953), 176.

¹⁰ Ransom, 177.

** General Menoher was a non-flyer and felt the Air Service should remain subordinate to the needs of the Army. In an address delivered after assuming duties as Chief of the Air Service, Gen Menoher stated, “The fighter...can never be the determining factor. The whole machinery of organization exists for the sole purpose of making it possible for him [the infantry soldier] go forward.” (*Air Power*, April 1919) When the *Ostfriesland* report ‘found’ its way to the press (Ransom, 178 & Purtee, 145), it

Notes

was the event which forced the issue of Gen Menoher's ability to control the outspoken Gen Mitchell (Mitchell was Menoher's Director for Air Service Training and Operations.) As a proponent for the infantry soldier, he found Gen Mitchell's "activities and contentions very trying." (Purtee, 142.) Printing of Mitchell's *Ostfriesland* report indicated an apparent lack of control by Menoher over Mitchell, and Menoher became incensed to the point that he placed an ultimatum to Secretary of War John Weeks that either Menoher goes or Mitchell goes. Weeks allowed Menoher to resign. (Tate, 26)

¹¹ President Coolidge awarded the flyers that completed the Pan American trip the newly created Distinguished Flying Cross (Copp, 72.)

¹² The words from Spaatz's Distinguished Flying Cross citation sum up best what the flight accomplished for the Air Corps, "By his endurance, resourcefulness and leadership he demonstrated future possibilities in aviation which were **heretofore not apparent** (bold added)..." (Copp, 82.)

¹³ John F. Shiner, *Foulois and the US Army Air Corps, 1931-1935* (Washington DC: Office of Air Force History, 1983), 35-36. Even the Navy recognized it as "one of the most ambitious and significant efforts in the annals of aviation in the United States." (*United States Naval Institute Proceedings*, Vol. 57, no. 7, July 1931, 903.)

¹⁴ Shiner, 12. Secretary of War Newton Baker opposed the results of this board: he was of the firm belief there was no need for an independent air arm and that "the infantry is the backbone of the military effort, and all other arms on land, on the sea, and in the air, are mere aids to its advance and protection to it while it is performing its functions of advance and occupation." (Tate, 7.)

¹⁵ *The National Defense Act*, Approved 3 June 1916, as Amended by Act Approved 4 June 1920 (Washington DC.: Government Printing Office, 1920.)

¹⁶ It established force levels, appointed a Chief of the Air Service (bringing it on par with the Cavalry and Signal Corps) and authorized 2,500 cadets per year for training. (Shiner, 17)

¹⁷ Bernard C. Nalty, *Winged Shield, Winged Sword* (Washington DC.: Air Force History and Museums Program, 1997), 97. It also recommended that flying squadrons fall under the General Headquarters (GHQ) Army, as opposed to being assigned to field units.

* The Lassiter Board convened during the Coolidge administration — an administration that was budget conscious and did not see the needs of expanding the military as critical. President Coolidge once asked, "Who's gonna fight us?" With an ocean to the east and west and passive neighbors to the north and south, it was a question with an element of truth. (Tate, 27.)

¹⁹ Ransom, 222-224.

* During this same time period, another political event impacted the Air Corps struggle for independence. Billy Mitchell was court-martialed and subsequently resigned from the Army, thus the Air Corps lost its most vocal, official proponent for airpower. Though a detailed discussion of this politically charged event is not within the scope of this paper, *The Billy Mitchell Affair* (Burke Davis (New York, NY.: Random House, 1967)) contains an excellent account of the court-martial proceedings

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²⁰ US House. *Select Committee of Inquiry into Operations of the United States Air Services: Hearings on Matters Relating to the Operations of the United States Air Service (Lampert Committee.)* 68th Congress, 1st session, 1925, 1. These Hearings lasted eleven months, one of the lengthiest Congressional inquiries exploring the subject of US aviation.

²¹ See Ransom, 232-248 (*The Air Corps Act of 1926*) for a detailed discussion of the Lampert Committee Hearings.

²² Named the "Morrow Board" for its chairman, Dwight Morrow. The New York Times said of the Morrow Board, "it requests facts from all witnesses, rather than mere statements," and, "a survey [referring to the Lampert Committee] of the entire situation was made...The result was that the Chief Executive became convinced...that a comprehensive and public showdown of the subject in all its phases should be made before the next session of Congress." ("The Nation Seeks the Truth About Aviation," *New York Times*, 27 September 1925, sec. 8, 5.)

²³ Ibid, 5.

²⁴ *New York Times*, 14 September 1925, 18.

²⁵ *Report of President's Aircraft Board (Morrow Board.)*, 30 November 1925, 6-21.

²⁶ The Act allowed for an end strength of 1,650 officers, 15,000 enlisted and 1,800 serviceable aircraft. The Act also authorized an additional Assistant Secretary of War to help the Secretary of War in fostering military aeronautics. (*Army, Postal and Navy Air Service Laws*, 15-17)

²⁷ Gerald E. Wheeler, "Mitchell, Moffet and Airpower", *The Air Power Historian* VIII, no. 2 (April 1961), 87, AFHRA K239.3055-1 v. 8-2.

²⁸ Lt Cdr (USN) H.T. Bartlett, "Mission of the Aircraft with the Fleet", *Air Power*, May 1919, 15-17.

²⁹ Tate, 101.

³⁰ Lester Hugo Brune, *The Foundations of American Air Power Doctrine, Aviation and National Defense, 1919-1933; A Study of the Relationship between Force Weapons, Power Concepts and Foreign Policy*, PhD. diss. (Rochester, NY.: University of Rochester, 1959), 241.

* Admiral Pratt was the "attacking" fleet commander in charge of the 1929 air exercises in Panama (Brune, 241) and knew the value of carrier aviation. However, he was still a firm believer in the battleship as the backbone of the Navy. Because of Admiral Pratt's conviction for the role of the battleship, he was personally committed to aircraft that would go out to sea to enhance the total fighting power of the battle line. With these concepts, and funding a top concern, Pratt was the key to compromise in the Pratt-MacArthur agreement. (Gerald E. Wheeler, *A Sailor's Life* (Washington DC.: Naval History Division, 1974), 286, 334, 355-357.

³¹ The cooperation was heralded as "the closest cooperation that has ever existed between two great branches of our national defense." ("Air Coast Defense Assigned to Army", *New York Times*, 10 Jan 1931, 14) The 12 Jan edition stated Pratt and MacArthur "brought fresh and unbiased minds to a settlement of the ten-year-old dispute involving defense of the coast by the aviation branches."

³² War Department Press Release, Jan 9, 1931, AFHRA 168.3942-191.

Chapter 3

The Air Mail Fiasco

Involving the Air Corps in Federal Domestic Affairs

National politics played a significant role in determining the use of the Air Corps in February 1934 when President Roosevelt directed the Air Corps to carry the US mail. Roosevelt turned to the Air Corps because evidence was uncovered and brought to his attention that the Postmaster General misused his contracting authority (he altered bidding procedures for airlines to gain air mail contracts.)¹ As a result, President Roosevelt, through Second Assistant Postmaster General Harllee Branch, inquired to Chief of the Air Corps, General Benjamin Foulois, as to whether the Air Corps would be capable of assuming air delivery service for the US mail. Although there is some dispute as to what Gen Foulois' reply was,^{*} on 19 February 1934, ten days after the initial discussion, civil contracts for air mail delivery were cancelled and the Air Corps was given the task. General Foulois appointed Brigadier General Westover commander of the newly formed Army Air Corps Mail Operation (AACMO),² and the Army was in the business of delivering the US mail.

Based on how quickly the announcement was made, it seemed as though the President was already prepared to use the Air Corps for this purpose. General MacArthur, then Army Chief of Staff, was not even informed of the action until the

President had made his decision public. In fact, the Associated Press (AP) informed MacArthur as they sought to gather details for their story.³ Because the context of the era was one of competition between the military services for funding and appropriations, this event served as a grand opportunity for the Army and its Air Corps to display their capabilities, however ill-equipped or ill-prepared they may have been for the task. MacArthur, upon receiving the news from the AP told the reporters, “This will be another example of the Army’s preparedness to take every call in its stride.”⁴ Gen Foulois, in memoirs many years later recalled,

The beginning of the year 1934 saw the Army Air Corps, not only in bitter competition with all Federal Land and Sea forces for its share of the taxpayer’s dollar, but also in bitter competition with numerous new Federal Civil Agencies...Future Military Development—especially in the Air Corps, appeared to be definitely halted for several years to come. Therefore, when the Army Air Corps was suddenly ordered to undertake its second peacetime test*, I frankly and without reservation accepted the responsibility for the transport of domestic air mail, in the primary interest of the future development of the Army Air Corps.”⁵

Both Generals indicated readiness to showcase abilities, but was the Air Corps up to the task?

State of the Air Corps Fleet and AACMO Operations

As for the state of the fleet, when AACMO reviewed the routes, mileage and average mail amounts to be delivered, they determined 150 airplanes were required to do the job. However, even though the Air Corps Act of 1926 specified a level of 1,800 aircraft to be achieved by 1931, the 1934 aircraft inventory was only 1,500 serviceable aircraft. Of these 1,500, almost 500 were trainers or special purpose aircraft, and of the remaining 1,000, over half were obsolete due to lack of new aircraft appropriations.⁶ The remaining aircraft in service were intended for use during the day and during good weather; they

were not equipped with “blind flying” instrumentation which would allowed aircraft to fly through the weather without ground references. Additionally, most were open-cockpit aircraft and had inadequate heating and lighting for nighttime flying.

The pilots themselves were also not well suited to the task. Whereas the civilian commercial pilots had been flying upwards of nine hundred hours per year, over the same routes and in aircraft equipped specifically for instrument and nighttime flying, their military counterparts were not nearly as well trained for this mission. At the time, air corps pilots were averaging only two hundred hours per year and were required to train only ten hours per year at night. Although there was an instrument flying training course operating out of Langley, Virginia, it was fairly new and only thirty-eight pilots had been trained at the outset of the Air Corps’ tasking to carry the mail. As for actual air mail operations, AACMO divided the nation into three zones for mail delivery with Maj Byron Jones, Lt Col Horace Hickam and Lt Col Henry Arnold to run the eastern, central and western zones respectively.

But not everyone agreed with using the Air Corps for this service. Pressure on the government by civilians who felt the President should not have canceled contracts, nor placed the under-trained and under-equipped Air Corps in the position of carrying the mail, voiced their opinions.* As a publicity stunt, WWI ace Eddie Rickenbacker, employed by Transcontinental and Western Airlines (TWA), delivered the last commercial contract mail on 19 February 1934 in a newly christened DC-1, an all-metal monoplane.⁷ This run set the new transcontinental speed record and established a performance record the woefully inadequate Air Corps equipment could never hope to match.

Air Corps Performance

Unfortunately, poor weather hampered the Air Corps in the beginning week and caused delays, and directly contributed to five aircraft crashes and two fatalities. Though the pilots and enlisted crew performed valiantly, their courageous spirit could not overcome the harsh weather conditions, inadequate aircraft and lack of instrument flight training. With the press hounding the service, the pressure to perform was incredible. Capt Ira Eaker, commanding officer for Air Mail Route 4 in the Western Zone said, “The average man does not realize the pressure which propaganda has brought to bear upon us in this job” as he described dealing with the civilian population and its news account-fueled perception of the Air Corps.⁸ Such was the focus of public attentions during these trying times.

By 9 March numerous close calls, fifteen aircraft crashes and ten fatalities forced Gen Foulois to stand down air mail operations. From the period 10 March to 19 March, Gen Foulois instructed AACMO to install all available navigation and lighting instruments in aircraft, he ordered each zone commander to recheck all aircraft for servicing, and he worked out a revised air mail delivery structure to reduce the number of flights by forty percent. To add insult to the stop in activity, Generals MacArthur and Foulois received a severe, and rather public, tongue-lashing by President Roosevelt during this operations stand-down.⁹ President Roosevelt was fielding a barrage of criticism from Congress on the entire air mail “fiasco.” He issued a letter to Secretary of War George Dern that proscribed his new policy for air operations, and indicated to Congress the only way to have commercial carriers back on the job would be to enact necessary legislation to revise contract-letting processes.¹⁰ Through his personal

involvement with the Army and its Air Corp, President Roosevelt brought intense focus on the poor condition of the air arm of the military, albeit for performance in a commercial mission.

On 20 March, Air Corps operations resumed and the success rate improved drastically. Between then and 7 May, the date of commercial carrier resumption of duties, only one fatality occurred. As the number of crashes subsided, so did the press coverage—but the press did not cover the fine job accomplished after the stand down. However, the incredible deluge of press coverage during the rough times helped fuel criticisms against the state of the Air Corps, and perhaps helped bring about two key events: one was the increased rate of production of the B-10 bomber, the other was the convening of the Baker Board.

Summary: Affect of Air Corps Involvement in Delivering the Mail

The Martin B-10 was the latest bomber off the production lines: all-metal monoplane with speed and a large payload. During the last two weeks of April 1934, production was accelerated to meet the demands of delivering the mail, and twelve B-10s came into the service of AACMO. With their range, speed and capacity, they could deliver a larger load faster than the other aircraft currently in service. In a publicity stunt reminiscent of Rickenbacker, on 8 May (the last delivery day for the Air Corps), Maj Arnold sent a B-10 on a transcontinental delivery flight to attempt to break the record set by Rickenbacker. Although the flight took barely fifty minutes longer, Lt Pete Quesada, pilot for the attempt, flew two hundred and seventy-nine miles further, and stopped for refueling three more times than had Rickenbacker.¹¹ With good news this time, the Air Corps made

headlines one last time with the transcontinental flight of its latest bomber—which proved it was able to carry a heavy load, farther and faster.

On the legislative side, The Baker Board, commissioned by the President to review Air Corps activities, met over a three-month period.¹² The significant recommendations were the following: create a General Headquarters Air Force; change the procurement policy; purchase 820 planes, with a corresponding increase in personnel; and establish minimum flying hour requirements for pilots.¹³ All of these recommendations came to pass and by October 1934, the GHQ Air Force became a reality. Also, poor Air Corps performance focused congressional attention on the Air Corps, and ensured that from 1936 until WWII, Air Corps funding increased.¹⁴ The appropriations for following years allowed the newly formed GHQ Air Force to purchase the true object of their desire: the B-17—a four-engine, state-of-the-art bomber, and backbone of the strategic bombing force in the European theater.

The accelerated production of the B-10 and implementation of the Baker Board recommendations resulted from national politics forcing an unforeseen (and perhaps unwelcome) event on the Air Corps. Perhaps most importantly though, the key figures involved in the air mail operation (Arnold, Eaker, Kuter, George and others) were the same key leaders that continued to define the Air Corps and its doctrine, and subsequently led the Air Force into WWII. Their early experiences with the types of aircraft and capabilities necessary to deliver the mail stayed with them as they developed similar concepts later on when determining how to “deliver the mail” in war.

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¹ Shiner, 125.

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* In Rutowski's account (*The Politics of Military Aviation Procurement, 1926-1934*, 126) he states that after only three hours of study, when Postmaster Branch asked Gen Foulois when he could be ready, he replied rather casually "I think we could be ready in about a week or ten days." In Borden's account (*Air Mail Emergency 1934*, 6) when asked, Gen Foulois' reply was, "The Army most certainly can, but only if it is given time to prepare for the job." In fact, Borden's account maintains that Gen Foulois made it clear to Branch that the Air Corps needed four to six weeks to prepare the men and machines.

² Norman E. Borden, Jr., *Air Mail Emergency 1934* (Freeport: The Bond Wheelwright Company, 1968), 9.

³ Shiner, 127.

⁴ Ibid, 127.

* The 'first' peacetime test was the air maneuvers staged in May 1931 out of Wright Patterson over the Great Lakes region and the East Coast (see Chapter 2.) Also, Foulois brings up the comment of "bitter competition" between not only the other services, but Federal Civil Agencies as well: a clear testament to the struggle for recognition and funding during these years.

⁵ Edwin H. Rutowski, *The Politics of Military Aviation Procurement* (Ohio State University Press, 1966), 117-118.

⁶ Borden, 130-132.

* Charles Lindbergh, hero of the transoceanic crossing, sent a telegram of protest to the President requesting a fair hearing be given to the airlines concerning the canceling of air mail contracts. A national controversy was precipitated over the curt response offered by one of the President's secretaries rebuking Lindbergh for sending the telegram for "publicity reasons." (Borden, 49)

⁷ Ibid, 60-62.

⁸ Ibid, 79.

⁹ Nick A. Komons, *Bonfires to Beacons* (Washington DC.: Smithsonian Institution Press, 1989), 262.

¹⁰ Copp, 210-212.

¹¹ Ibid, 219-220.

¹² US War Department. *Final Report of War Department Special Committee on Army Air Corps (Baker Board)*, (Washington DC: GPO, 18 July 1934), 1.

¹³ Borden, 138-141.

¹⁴ Maurer Maurer, *Aviation in the US Army 1919-1939* (Washington DC.: Office of Air Force History, 1987), Appendix 8, 475-477. Appendix 8 lists the direct appropriations and percentage of Army appropriations for the years 1919-1939. Beginning with 1935, the percentage of Army appropriations averaged above 13%, whereas as prior to 1935 the average was closer to 7% – 8%.

Chapter 4

Internal Influences Driving Air Corps Doctrine

Influence of Early Airpower Theorists on US Air-minded Thinkers

Billy Mitchell was the most vocal of the early Air Service thinkers. At St. Mihiel, he witnessed first hand the application of military airpower in WWI. His views on airpower encompassed all roles—pursuit, attack and bombardment¹—and he believed that the “air forces will strike immediately at the enemy’s manufacturing and food centers, railways, bridges, canals and harbors.”² Although he did not specifically acknowledge basing his ideas on the published works of other theorists, Mitchell’s doctrinal beliefs were influenced by those of Sir Hugh Trenchard (Great Britain) and General Giulio Douhet (Italy).*

Mitchell met with Trenchard, Commander of the Royal Flying Corps in 1917, to learn of the British General’s ideas of an “air offensive,” and how he advocated that it was “best to exploit the moral effect of the airplane on the enemy but not to let him exploit it on ourselves....this can only be done by attacking and continuing to attack.”³ Trenchard’s air strategy was to attack with bombers, destroying both the enemy’s morale through attacks on civilian population, as well as destroying enemy infrastructures such as transportation and production. Similar to Trenchard, Douhet also advocated attacking

these same targets, but felt that prior to those targets, command of the air must be achieved first by attacking and destroying the enemy air forces on the ground.⁴

Perhaps the least spoken about, but just as influential, was another US airpower theorist, Colonel Edgar Gorrell. Gorrell advocated day and night strategic bombing and based his targeting on a form of industrial analysis, afflicting damage to key industrial centers to cause the enemies war machine to fail.⁵ As with Mitchell, European thinkers influenced Gorrell. He received a copy of Nino Salveneschi's book, "Let Us Kill the War; Let Us Aim at the Heart of the Enemy", which was a compilation of ideas by Italian air power enthusiast, Gianni Caproni.⁶ Based on German industrial target data received from Caproni, Colonel Gorrell submitted a program on 28 November 1928 for strategic bombardment of the key industrial areas in Germany.⁷ This proposal was a clear and precise method for the application of strategic bombardment, and according to General Laurence S. Kuter, the "earliest, clearest and least-known statement of the American conception of air power..."⁸ Each of these early thinkers had considerable influence on the early development of American airpower doctrine.

Early US Airpower Doctrine

Emerging from WWI, the nation had a shrinking budget, and believed in civilized warfare. Even Secretary of War Newton Baker stated that "from a standpoint of efficiency and ethical grounds, there was no place for strategic bombardment in modern war."⁹ In fact, there was substantial agreement among commanders that the role of aviation was to first achieve control of the air, and then support ground troops by attacking the enemy ground troops from the air.

However, during this time, leaders in the Air Service fought tenaciously for the coastal defense mission in order to remain a viable force, and gain appropriations to equip the force. Therefore, much of the planning centered on the best equipment and the best methods for carrying out the mission of coastal defense, and eventually, thoughts of bombardment began to creep back up the ladder of priority. General Patrick, Chief of the Air service, inasmuch made this clear when he signed onto General Mitchell's proposition for building a force comprised of bombers. In his annual report of 10 September 1925, he asked for additional air strength strictly for that purpose.¹⁰

This is not to say pursuit was neglected as mission of the air forces—far from it. Mitchell declared, “Pursuit aviation is the basis of an air force, just as the infantry is the base on which an army rests.”¹¹ Nothing could resist pursuit because it was built to attack from all angles. Aviators assumed pursuit would give an army control of the air, which would allow bombers to fly over the target in daylight and bomb accurately. However, in a nation with declining appropriations to the military, funding for continued development of *both* types of aircraft was marginal. As funding became available, and the struggle against the Navy to gain the coastal defense mission increased, the Air Corps placed more emphasis on increasing range and payload—key considerations for bombing attacking ships far from shore. The emphasis was on continental defense, not attacks into enemy territory. Therefore, the bulk of funding went to developing a bomber to support the coastal defense mission.¹² Though Mitchell claimed pursuit was still the “basis of the force”, the biplane was the standard pursuit plane well into the late 1920s. Also, proponents for bombardment were becoming more numerous and eloquent in their ability to espouse strategic bombardment as key to overcoming an enemy's ability to wage war.

ACTS, Pursuit vs. Bombardment, and AWPD-1

ACTS Doctrine

Looking at the doctrine recommended by the Air Corps Tactical School (ACTS), the suggestions for air employment priorities seem to change around 1928. On 30 April 1928, the ACTS Commandant sent a study to the Office of the Chief of the Air Corps recommending a sound doctrine for the employment of the air force. Six weeks later, he sent a revised document, again outlining the recommended doctrine. Precipitating the change was a visit to ACTS by Majors Pratt and Lyon. The original document (30 Apr) defined pursuit as “either offensive or defensive”, listed attacks on all types of aircraft and described pursuit as a separate mission with maximum affect being “sought by operating pursuit aviation in concentrations.”¹³ For bombardment the doctrine stated it possesses the “greatest fire power of any component of an Aerial Force” and can be used with or without pursuit aviation.¹⁴ The revised submission (9 Jun) described bombardment as the basic air force arm while pursuit “has no separate or independent offensive role” and “only in defending against hostile bombardment, attack or observation does its mission require it to destroy aircraft in flight.”¹⁵ This complete change in thought process about pursuit is unexplainable, though one may surmise that discussions with the visiting Majors either highlighted new guidance (perhaps sent from the OCAC), or provided information concerning technology (pursuit aircraft being nearly obsolete in capability), or recommended posting a doctrine which was consistent with the coastal defense mission (thereby strengthening the Air Corps case for assumption of this mission.) Whatever the cause for the change, what is known for sure is the battle

between pursuit and bombardment *within* ACTS was changing the course of thinking at the school.

Pursuit vs. Bombardment

Forceful personalities at ACTS pushed both missions: pursuit and bombardment. As the Chief of Pursuit section until 1936, Major Claire Chennault was the leading proponent for the fighter, though he saw its main capability as a defensive weapon.*

Facing off against him was a very articulate group of bomber advocates which included Majors Harold George, Haywood Hansell, and the Chief of the Bomber Section when Chennault was a section chief, Major Laurence Kuter.

The competition at the school was fierce, and perhaps Chennault's abrasive nature fueled the intensity of the debates.¹⁶ Both sides advocated their mission not just to develop doctrine, but to help gain funding for the aircraft they believed would fulfill their mission. For the bomber group, it was the B-9 and B10, and later the B-17. As discussed, American aircraft development had yet to produce a fighter comparable in speed and climb ability to the B-10.¹⁷ Because the fighter appeared inferior, fighter advocates did not have a technological edge when debating the use of escort fighters, and when discussing bomber effectiveness against enemy fighters. In fact, during the air exercises of 1933, outdated fighters were matched against newer bombers that could outclimb and outrun the fighters—further “proof” of the dominance of bombers.¹⁸ There was no give and take at the school over this topic. Kuter said later, “We just overpowered Claire; we just whipped him,”¹⁹ and said that all the bomber guys thought the bomber was invincible, “we couldn't be stopped.”²⁰ Unfortunately, Chennault's outspoken and abrasive nature made it difficult for him to progress in the service and he

retired in 1936. When he left the service, the pursuit advocates lost their loudest voice, and the bomber advocates forged ahead with their beliefs.

The unshakable beliefs of the bomber advocates came to life in a bombing strategy that aimed at destroying the ability of an enemy to continue to wage war—the industrial web theory. With the advent of superior bomber aircraft and the capability to drop ordnance precisely with newer bombsights, flyers at ACTS set about trying to determine how to inflict damage on key targets to render enemy industry and infrastructure impotent.²¹ This concept of attacking the industry and infrastructure appears to enter into the curriculum in the 1933-34 school year,²² at the height of the pursuit/bomber controversy. In 1941, a planning group gathered in Washington D.C. and used this same industrial web concept to frame our nation's plans for air operations in the European theater during WWII.

Air War Plans Division, Plan No. 1 (AWPD-1)

Up until now, all talk of how the bomber would win the day was only theory. On 4 August 1941, four airmen received their opportunity to turn theory into reality. Col Harold George, Lt Col Kenneth Walker, and Majors Laurence Kuter and Haywood Hansell formed the team which, in nine days, determined the precise logistics requirements to support air operations in Europe, and developed the targeting plan for offensive operations—all encompassed in AWPD-1.²³ Each of these individuals was an ex-ACTS instructor, and all were “bomber advocates.” As a Lieutenant, Ken Walker once said, “A well planned and well organized air attack once launched cannot be stopped.”²⁴

AWPD-1 called for offensive bombing operations against the heart of Germany's infrastructure with priority on targeting electrical power, transportation, oil and morale. Despite all of the earlier posturing between bomber and fighter advocates, AWPD-1 in fact states, "It is mandatory that escort fighters be developed ...without delay. An escort fighter with range comparable to a bomber it supports must be developed to insure day bombing missions in spite of opposition..."²⁵ Clearly, even though strategic bombardment operations were the key to the offensive operations in AWPD-1, the planning group recognized the need for escort aircraft. Thirteen months later, nine months into the war, the follow-on plan, AWPD-42 was developed to provide "air ascendancy"²⁶ over the enemy. President Roosevelt desired to obtain air supremacy for subsequent ground operations. Aside from shifting targeting priority to the German air forces, and adding aluminum and rubber as target systems, the plan did not call for escort fighters. Later, General Hansell recognized this as "one of the greatest faults of AWPD-42. It can only be assumed that it was not considered possible to design and produce such aircraft in such short time."²⁷

Results of Unescorted Strategic Bombing

The US Army Air Forces went to war with AWPD-1 and continued to prosecute the war under the guidance of AWPD-42. The bomber reigned supreme as the vehicle for operations because of the forceful proponents who "whipped" the pursuit advocates in ACTS. This rift between the bombardment section and the pursuit section, "almost lost us the entire air war as conceived and prosecuted by US Army Air Force,"²⁸ because the attrition rate of the bomber campaign in Europe without fighter escorts (that could go all the way to the target area) were almost prohibitive.²⁹ After an inspection visit, the

Assistant Secretary of War for Air, Robert Lovett, emphasized in a note to General Arnold the need for increased escort. He said, “There is an immediate need for long-range fighters.”³⁰ As for the results of the early bombing campaign, “The United States Strategic Bombing Surveys” conclusions are clear: “no operations during 1942 or the first half of 1943 had significant effect.”³¹ It was not until a balanced operation, long-range escorts with bombers, that the bombing campaign had serious affect on the German capacity to continue to wage war.

Summary: Strategic Bombing as Primary Airpower Doctrine

Eventually, long-range fighters escorted the deep strike missions and bomber survival rates increased, but only when severe losses drove the Americans to provide such escort. The early airpower thinkers envisioned a more balanced doctrine—Mitchell’s 60-20-20 percent split with fighter, bombers and attack aircraft, respectively, and the early doctrine of the Air Corps Tactical School. But fanatical beliefs sparked political infighting between both the fighter and bomber advocates in ACTS.

Ultimately, the inflexibility of these radically opposed groups to rationally develop a balanced doctrine, led to a doctrine based on a belief that the bomber could penetrate defenses without escort, and deliver bombs with accuracy. The forceful personalities involved in this political infighting were the same airmen who witnessed great feats of range and endurance in the early years, and disastrous performance during Air Mail fiasco. They pushed for the aircraft which they knew would “deliver the mail”—the long-range, heavy payload bomber—and the doctrine to go with it—the strategic bombing theory.

Notes

¹ Brig-Gen William Mitchell, "Our Army's Air Service," *The American Review of Reviews*, Sep 1920, 281-290. As early as 1920 Billy Mitchell advocated for future wars a ratio of 60% pursuit, 20% bombardment and 20% attack. This is similar to his later requirement of "2 for 1", i.e., 2 pursuit aircraft for each bomber and attack airplane, respectively (William Mitchell, *Winged Defense*, New York, NY.: Dover Publications, Inc., 1925, 188-190.)

² William Mitchell, *Winged Defense* (New York: Dover Publications, Inc., 1925) xvi.

* Capt Edgar Gorrell accompanied Maj R. C. Bolling on the aeronautical mission to Europe (Bolling Mission, see Appendix A). During this period, from June – Aug 1917, Mitchell worked alongside the mission as they interacted and exchanged ideas about the use and future potential of airpower. For Mitchell and Gorrell, exchanging concepts with Trenchard, Douhet and Caproni were no doubt the capstones in forming their personal views on airpower doctrine. (see Maj R. C. Bolling to Chief Signal Officer of the Army, letter, subject: Report of Aeronautical Commission, 15 August 1917 and *Final Report of Chief of Air Service AEF*, Air Service Information Circular, Vol. II, no. 180, 15 February 1921, 23-28)

³ Major Alfred F. Hurley, *The Aeronautical Ideas of General William Mitchell* (Ann Arbor, Michigan: University Microfilms, Inc., 1961), 39.

⁴ Giulio Douhet, *Command of the Air* (Washington DC: Office of Air Force History, 1983), 96.

⁵ Edgar S. Gorrell, "An American Proposal for Strategic Bombing," *The Airpower Historian*, Vol V, no. 2 (April 1958), AFHRA K239.3095-1.

⁶ Dr. J. L. Boone Atkinson, "Italian Influence on the Origins of the American Concept of Strategic Bombardment," *The Airpower Historian*, Vol IV, no. 3 (July 1957) AFHRA K239.3095-1.

⁷ Gorrell, p. 103.

⁸ Thomas H. Greer, *The Development of Air Doctrine in the Army Air Arm, 1917-1941*, USAF Historical Studies 89, (Maxwell AFB, Ala.: USAF Historical Division, Air University, 1955), 10.

⁹ Ibid, 15.

¹⁰ Ibid, 34.

¹¹ Ibid, 37.

¹² *Development of the Long-Range Escort Fighter*, USAF Historical Study No. 136 (Maxwell AFB, AL.: USAF Historical Division, Air University, September 1955), 24-29. An excellent account of the debate surrounding the requirements and trade-offs between the different types of fighter designs. As late as 1939, Lt Col Donald Wilson (Dir of Air Tactics and Strategy, ACTS) in a letter to Col Millard Harmon, cautioned against expending too much effort on developing an escort fighter because, "to divert production to fighters, when the total number of aircraft to be built was limited, would represent a corresponding loss of bombers." (p. 29.)

¹³ Lt Col C. C. Culver to Chief of Air Corps, letter, subject: Doctrine of Employing an Aerial Force, 9 June 1928, 30 April recommendation, AFHRA K248.121-1.

¹⁴ Ibid, 30 April 1928 recommendation.

¹⁵ Ibid, 9 June 1928 recommendation.

Notes

* Chennault voiced the need for pursuit aircraft but made two important qualifications: air defense was viable with reliable and timely intelligence, and he also believed, as did his bomber counterparts, that the escort fighter was impractical (Byrd, 61-64.)

¹⁶ Martha Byrd, *Chennault: Giving Wings to the Tiger* (University, AL.: University of Alabama Press, 1987.) In her book, Byrd points out that Chennault's abrasive personality served to negate his arguments. In fact in his own book, *Way of the Fighter*, Chennault made clear his ability to speak his mind when he said, "I was always impatient with anyone who required more time to do these things. This trait produced unfortunate results in later years because I was seldom able to explain my plans in detail to my superiors. Usually, it never occurred to me to explain my plans, and I suffered a defensive complex if required to do so." (Claire Lee Chennault, *Way of the Fighter*, ed. Robert Hotz, New York, NY.: G.P. Putnam's Sons, 1949), 83.

¹⁷ *Development of the Long-Range Fighter*, 50. As late as 1940, the Air Corps still thought of fighters in terms of continental defense, consequently, the premier escort fighter of the European theater, the P-51 Mustang, did not go into production until 1941 (Nalty, 242.)

¹⁸ Robert T. Finney, *History of the Air Corps Tactical School, 1920-1940*, USAF Historical Study 100 (Maxwell AFB, Ala.: USAF Historical Division, Air University, 1955), 76-77.

¹⁹ Laurence S. Kuter, transcript of oral history interview by Thomas A. Storm and Hugh N. Ahmann, 30 September-3 October 1974, 111, AFHRA K239.0512-810.

²⁰ Ibid, 114.

²¹ For a detailed discussion of the research done by ACTS to validate their theory, see *Air Corps Tactical School: The Untold Story*, Dwight H. Griffin, et. al., (Maxwell AFB: Air Command and Staff College, May 1995), 28-43.

²² Maj Gen Donald Wilson (Ret) to Air University Commandant, letter, subject: Information on Air Corps Tactical School, 2 Nov 1955, AFHRA K245.01-2. Gen Wilson, a former ACTS instructor, offers a very well researched letter on when he thinks the concept of strategic bombing and the industrial web theory entered the curriculum.

²³ Nalty, 187.

²⁴ Brig Gen Haywood Hansell, Jr., "The Development of the United States Concept of Bombardment Operations," lecture, Air War College, Maxwell AFB, AL., 19 September 1951, AFHRA K239.716251-76.

²⁵ Ibid, 23.

²⁶ Maj Gen Haywood S. Hansell, Jr. (USAF Ret), *The Air Plan That Defeated Hitler*, (Atlanta: Higgins-McArthur, 1972), 100.

²⁷ Hansell ("The Development of the United States Concept of Bombardment Operations"), 31.

²⁸ Ibid, 13.

²⁹ The most prolific example of losses due to lack of escort were the raids on the bearings industry in Schweinfurt. Over 6 days in October 1943, 148 American bombers failed to return to their bases. On one mission alone 60 out of 291 B-17s did not return. (Noble Frankland, *The Bombing Offensive Against Germany* (London: Faber and Faber,

Notes

1965), 77.) Compare this with a similar mission to Schweinfurt in February 1944 in which B-17 bombers had fighter support: only 11 out of 235 bombers were lost (The Combined Bomber Offensive: 1 January to 6 June 1944 (Maxwell AFB, AL.: AAF Historical Office, April 1947), 139.) For a comprehensive report of Allied fighter escorts on bomber missions see Colleen M. Keller, *Fighter Escorts for Bomber Raids Using Historical Precedents* (Alexandria, VA.: Center for Naval Analyses, October 1987), 8-11. She states that, “[bomber] losses were due more to the lack of proper fighter escort.”

³⁰ *The Combined Bomber Offensive: April to December 1943* (Maxwell AFB, AL.: AAF Historical Office, March 1946), 60.

³¹ *The United States Strategic Bombing Surveys* (Maxwell AFB: Air University, October 1987), 14.

Chapter 5

Conclusions and Recommendations

What the Past has Taught Us

The time between the end of the first World War and the beginning of the second World War was a period of transition for the Air Corps. The US had no wish to project offensive capability, and military budgets declined drastically. Courageous and visionary airmen established the Air Service's reputation as a capable combat force, and competed with the Navy to define a mission that would allow them to exist and grow. Once secured as a primary mission, coastal defense of the United States pushed military *aircraft development* and training considerations towards the employment of the bomber—airmen needed to fly long ranges over the sea and have the capability to bomb enemy ships. Along with the military mission, civilian airline development encouraged the development of the higher-payload, longer-range aircraft.

On the national stage, the President involved the Air Corps in domestic mail delivery in hopes of exerting pressure on Congress to rectify the contract-letting process. This fiasco of 1934 highlighted the absolutely deplorable condition of the Air Corps and demanded the *accelerated production* of the B-10 to support air mail delivery operations. The capabilities of this new bomber were far ahead of current Air Corps capabilities, and the B-10 proved itself a worthy aircraft on the long-range hauling missions. The B-10

also eclipsed the performance of the fighters of the day. In addition, follow-on *appropriations* for the Air Corps were virtually guaranteed to prevent another fiasco. This allowed the newly formed GHQ Air Force to procure and eventually equip itself with the B-17, mainstay of the European strategic bombing campaign.

Finally, throughout this transition period, the innovative thinkers for airpower employment spoke out every step of the way. They learned by trial and error, built doctrine based on the early ideas and available aircraft, and fought with each other for their beliefs. The firm beliefs, strong convictions and overwhelming *personalities* of the individuals involved served to formulate the strategic bombing theory, and create AWPD/1 and AWPD/42.

In all of these events, politics between individuals or organizations forced an issue or an event. Each event focused Air Corps planning and thinking toward the bomber as the primary aircraft, and strategic bombing as the primary method, for employing Army aviation. As we examine the path taken which led us to one war's air strategy, we need to be aware of the role politics plays in doctrine development as we plan for the present and future.

Professional competition and personality differences are unavoidable—understanding how they affect our decision-making process is the key. Just as Admiral Pratt and General MacArthur crafted an agreement, which had far-ranging affects on the two mightiest military services in the world, so must we be able to analyze situations with the same “fresh and unbiased” clarity. This concept is extremely important as we begin to craft our doctrine for aerospace operations in the 21st century.

Applicability to Current and Future Doctrine Development

Interwar Period in the Years 1991 – 20XX

Our present looks amazingly like our past, and so the challenges that face us today must compare with those of our founding fathers of airpower. Consider the similarities:

Successful war, new technology, and a good plan. The Air Service achieved great success in World War I with a new technology and a successful method to employ it. At St. Mihiel, Gen Mitchell showed that the airplane, employed in the proper manner, with the proper mix of assets, could be devastating to the enemy. Seven years ago, the Air Force displayed similar spectacular results during Operation DESERT STORM. New technologies such as low-observables, precision munitions and space assets contributed to the success of the operation.¹ Airmen employed these technologies in a concept called “parallel warfare”, the simultaneous attack against all enemy vital centers.² The enemy was paralyzed and blinded, and coalition partners achieved a stunning victory.

Post-war drawdown and mission search. After WWI, the Air Service faced budget cuts, personnel drawdowns, and a struggle to define its mission. Adventurous airmen displayed the latest in airpower capabilities to justify their service’s existence, and senior leaders battled to obtain the coastal defense mission. This mission led Air Service aircraft development toward the bomber. The fighter, as successful as it was in WWI, was not the main player in continental defense and therefore played a backseat role for funding and development. Similarly, since the Gulf War, the Air Force has faced budget restrictions and personnel reductions. We have witnessed the unveiling of the B-2 “Spirit” and declassification of many National Reconnaissance Office capabilities—all in

an effort to display dominant air and space capabilities. And one could easily argue that we are searching for a combat mission for our space forces in this post-Cold War era.

Events outside the control of the airman. In 1934, the Air Corps carried the mail at the direction of the President, despite having no appropriate equipment and inadequate training in that specific mission. As a result of the disastrous performance, future appropriations focused on bomber aircraft, and future Air Corps leaders, bitten by this experience, also drove their service toward bomber operations. For today's Air Force, it is difficult to predict the event today that might have the same affect; however, the conditions are ripe for similar experiences. Because the "change and uncertainty of the immediate post-Cold War era will continue"³ and, "the dangers we face are unprecedented in their complexity",⁴ one can assume the Air Force will be called upon to perform missions for which we have not prepared in the last forty years of Cold War build-up and training. As an example, transnational threats possess the capability to deploy and employ weapons of mass destruction (WMD), such as biological and chemical, at the place and time of their choosing. Our challenge is to defend against and respond to, if necessary, the threatened or actual use of these WMD.

Forceful personalities and contrasting opinions. Billy Mitchell, Claire Chennault, and Larry Kuter advocated their views on the use of airpower, each man a forceful and vocal proponent for his beliefs. This paper will not pass judgements on the validity or the actions of any one individual. However, it is clear that the airpower doctrine of unescorted, strategic bombing attacks was the result of a struggle of wills within the Air Corps. Our founding fathers of airpower had a new technology whose capabilities were rapidly changing, though whose employment options seemed limited by the line of

aircraft development. Of all the present-day technologies listed earlier, space capabilities are the most similar to what the airplane was post-WWI. Advances occur at an exponential rate, no fielded force exclusively controls the medium of space, and there remains the question of its use as a combat arm. On top of that, we face the same dilemma as we work to determine the role of space forces in our combat structure. Various proponents vocalize direction for space growth efforts ranging from serving as a force multiplier by gaining information dominance, to developing an offensive combat staging area with lethal weapons residing in space.⁵

Answers for the Challenges of a New Century

Our Air Force is similar in many respects to the Air Service of yesteryear. Likewise, we must recognize the political influences on doctrine development, and try to contend with, and perhaps overcome, the force of these influences. Lt Col David Edmonds, when commenting on the success of DESERT STORM said, the US engaged Iraq at a point when “theory, technology and practice converged at the right time and place to allow employment of airpower to it’s maximum potential.”⁶ As we develop our doctrine for space, we must keep these aspects on even keel with each other. The potential exists for the *technology* of space applications, based on an exploding dual-use civilian market, to outpace both *theory* and *practice* of its combat application. Our challenge will be to adhere to the lessons of the past and apply them to the potential situations of the future. We must not become blinded by technological capability, but instead must continue to develop applicable theory, and practice employment concepts to validate theory. Only then will we stand on solid ground with a space doctrine.

The challenges facing us as a service, and as a nation, are immense. How we prepare for these challenges will determine how successful we will be as we engage. As a service and as individuals, whether in peace or war, we must use the power of objective reasoning, to develop air and space doctrine, set priorities for equipment and funding, and develop the roadmap for an Air and Space Force as it integrates into the Joint/Coalition world of tomorrow.

Notes

¹ Precision munitions, though not a “new” technology, were used in a much more robust fashion. In six weeks, more precision munitions were dropped in Iraq than over North Vietnam in nine months. In addition, targeting was across a broader range, and was utilized around the clock. (Thomas A. Keaney and Eliot A. Cohen, *Gulf War Air Power Survey Summary Report* (Washington D.C., 1993), 241.

² David A. Deptula, “Parallel Warfare: What is it? Where did it Come From? Why is it Important,” in *The Eagle in the Desert*, ed. William Head and Earl H. Tilford, Jr. (Westport, CT.: Praeger Publishers, 1996), 130-134. In this article, Deptula also calls precision munitions targeting and stealth technology the “enabling factor” and “technological leverage”, respectively, which allowed successful implementation of the parallel warfare strategy.

³ *Global Engagement: A Vision for the 21st Century Air Force* (Washington DC.: Department of the Air Force), 1.

⁴ *A National Security Strategy for a New Century* (The White House, May 1997), i.

⁵ Lt Col Michael R. Mantz, *The New Sword: A Theory of Space Combat Power* (Maxwell AFB, AL.: Air University Press, May 1995), 8-11.

⁶ Lt Col David K. Edmonds, “In Search of High Ground: The Airpower Trinity and the Decisive Potential of Airpower,” *Airpower Journal*, Vol. XII, no. 1 (Spring 1998): 14-17.

Appendix A

Significant Hearings, Boards and Legislation

The following list of hearings, boards and legislation is not all-inclusive, but serves to describe the significant discussion and laws surrounding the growth of the Air Corps (Air Service) during the inter-war years. The first member listed in the “Key Players” served as the board or committee chairman. In addition, although there are many “neat things to know” about each of the items below, any “Notes” are added only to help develop the contextual feeling of the era.

Bolling Mission

Dates: June – August 1917

Key Players: Maj R. C. Bolling,¹ Capt Edgar Gorrell

Purpose: To determine what types of aircraft the United States should build to aid the war effort in Europe, and to investigate successful manufacturing techniques.

Findings/Recommendations: Recommended various aircraft (reconnaissance, pursuit and bombing) to be produced in France and Italy.²

Notes: Key opportunity for Bolling, Gorrell, and Mitchell to interact with Trenchard (Great Britain), and Caproni (Italy) (evidenced in Bolling’s letter, “bombardment...can be made of vital importance if very great numbers of airplanes carrying great size and numbers of bombs can be provided and used continuously and systematically.”³

Dickman Board

Dates: April 1919

Key Players: Gen Dickman, Brig Gen Foulois (Air Service Branch Board Chairman)

Purpose: Commissioned by Gen Pershing to study the lessons of World War I as an aid in post-war formulation of doctrine.⁴

Findings/Recommendations: Recognized competition for resources among ground, water and air assets; although possibility for technological improvements in air existed, no proof that “aerial activities can be carried on, independently of ground troops, to such an extent as to materially affect the conduct of the war as a whole.”⁵

Notes: The “lessons” of WWI kept aviation under the firm control of the army.

Joint Army and Navy Board

Dates: June 1919

Key Players: Three high ranking members of Army and Navy (later changed to five members per each service.)⁶

Purpose: Created by joint order of the War and Navy departments to “secure complete cooperation and coordination in all matters and policies involving joint action of the Army and Navy relative to national defense.”⁷

Notes: Served as the main vehicle for each department to discuss joint issues such as missions, duplication of effort and funding. Later replaced by the Joint Chiefs of Staff in 1942.⁸

Crowell Commission

Dates: July 1919

Key Players: Benedict Crowell (Assistant Secretary of War)

Purpose: Appointed by Secretary of War Baker to survey aircraft doctrines and development in Europe.⁹

Findings/Recommendations: Establish a separate air service; create a separate air academy; create single government agency to direct all aviation activities in the United States.¹⁰

Notes: Secretary Baker did not agree with the findings and commissioned the Menoher Board to study the bills based on Crowell Commission findings (New and Curry bills.)

Menoher Board

Dates: Aug – Oct 1919

Key Players: Maj Gen Menoher (Chief of the Air Service)

Purpose: To report on the New (Senate bill 2693) and Curry (House of Representatives bill 7925) Bills.

Findings/Recommendations: “Military and naval forces should remain as integral parts of the Army and Navy and be completely under their respective controls both in peace and war...”¹¹; air forces should be placed on equal footing with Infantry, Cavalry and Artillery.

Notes: There was much controversy on the conduct of the proceedings¹²; Chief of the Air Service statement that aviation should remain under the Army conflicted with the most prolific air “radical” of the day, Billy Mitchell.

Army Reorganization Act of 1920

Dates: 4 June 1920

Purpose: To define a general organization plan for the Army of the United States.

Findings/Recommendations: Created an Air Service which became part of the combat line of the Army equal to artillery and infantry; increased numbers and pay for Air Service personnel.¹³

Notes: Maj Gen Menoher was the Chief of Air Service at this time with Brig Gen William Mitchell as his Assistant Chief of Air Service.

Lassiter Board

Dates: Mar 1923

Key Members: Maj Gen William Lassiter (Assistant Chief of Staff of the Army)

Purpose: Appointed by Secretary of War Weeks to investigate the proposed reorganization and mobilization plan by Maj Gen Patrick (Chief of the Air Service) and determine the proper strength and organization of the Air Service.

Findings/Recommendations: Determined the Air Service was in critical condition and bore no relation to the required tasking in war plans; recommended legislation to strengthen peacetime Air Service by implementing a ten-year expansion plan; recommended forming a General Headquarters (GHQ) Air Force.¹⁴

Notes: Approved “in principle” by Secretary of War, however, the Army and Navy members of the Joint Board could not come to agreement on funding and the recommendations eventually died (though served for points of discussion during the Morrow Board hearings.)¹⁵

Lampert Committee

Dates: October 1924 – December 1925

Key Members: US Representative Florian Lampert

Purpose: Continued investigation of military and national aviation policy.

Findings/Recommendations: Recommended a five-year aviation expansion program with the War and Navy Departments both receiving \$10 million per year to spend on flying equipment; also recommended Congress settle the missions of the Army and Navy.¹⁶

Notes: The longest and most voluminous of all boards—centered much of the proceedings on Gen Mitchell’s testimony. The general feeling was the Committee was sympathetic to Army aviators and hence would recommend positive changes for the Air Service.¹⁷

Morrow Board (President’s Aircraft Board)

Dates: September – November 1925

Key Members: Dwight W. Morrow (New York lawyer and friend of President Coolidge), Carl Vinson (Member of House Committee on Naval Affairs)

Purpose: Board commissioned by President Coolidge to make a study of the best means of developing and applying aircraft in national defense.

Findings/Recommendations: Determined air attacks not significant to ending wars; argued against a separate department of the air; recommended changing the name of the

Air Service to the Air Corps; recommended appointing an Assistant Secretary of War to deal with aviation matters; recommended representation for Army Air on the General Staff; made additional recommendations for rank, personnel, equipment and training over a five-year expansion period.¹⁸

Notes: Commissioned while the Lampert Committee was ongoing to forestall any rash action based on the Lampert Committee results; made recommendations for the Navy also; Col Mitchell used his opportunity during the hearings to make, among other statements, a near-complete recital of his book, *Winged Defense*.¹⁹

The Air Corps Act of 1926

Date: 2 July 1926

Purpose: “An Act to provide more effectively for the national defense by increasing the efficiency of the Air Corps of the Army of the United States, and for other purposes.”²⁰

Finding/Recommendation: Changed the name of Air Service to Air Corps; made provisions for more representation in the Air Corps by flyers (both in rank and numbers) as well as representation on the General Staff; a five-year development program was authorized expand personnel and equipment (1,800 “serviceable” aircraft); made provisions for an additional Assistant Secretary of War to aid in “fostering military aviation”; authorized Distinguished Flying Cross for aerial heroism.²¹

Notes: The dominant source for the act was the Morrow Board;²² served as an excellent compromise to all parties to allow expansion for aviation without creating a separate aviation service.

Drum Board

Dates: August – October 1933

Key Members: Maj Gen Hugh A. Drum (Deputy Chief of Staff of the Army), Maj Gen Benjamin Foulois (Chief of the Air Corps)

Purpose: To review and revise the plan submitted by the Chief of the Air Corps in support of US war plans.

Findings/Recommendations: Endorsed the concept of a GHQ Air Force; dismissed Gen Foulois’ request for 4,500 aircraft but recommended 2,320 aircraft for the Air Corps; supported the Air Corps claim to aerial coast defense as a mission.²³

Notes: Drum Board is the first official statement of the War Department to recommend a GHQ Air Force since the Lassiter Board of 1923.

Baker Board (War Department Special Committee on the Air Corps)

Dates: April – July 1934

Key Members: Newton Baker (former Secretary of War), Maj Gen Drum, Maj Gen Foulois, James H. Doolittle, Edgar S. Gorrell.

Purpose: Appointed by Secretary of War George Dern to make “a constructive study and report upon the operations of the Army Air Corps and the adequacy and efficiency of

its technical flying equipment and training for the performance of its mission in peace and war.”²⁴

Findings/Recommendations: Determined air power could not independently affect the outcome of a war and should remain under the control of the Army; proposed formation of a GHQ Air Force to train and equip combat aviation units; echoed Drum Board report for numbers of aircraft and personnel.²⁵

Notes: Jimmy Doolittle offered the only dissenting opinion of the board when he advocated the air force be “completely separated from the Army and developed as an entirely separate arm.”²⁶

Creation of GHQ Air Force

Dates: 1 March 1935

Key Members: Brig Gen Frank Andrews

Purpose: To create a single body to train and determine the best use for combat aviation forces.

Findings/Recommendations: The War Department gave Gen Andrews command of all Air Corps tactical units in the United States (except observation units allotted to ground forces.) He was responsible for instruction, training, maneuvers and tactical employment of all units in his command.²⁷

Notes

¹ Henry Greenleaf Pearson, *A Business Man in Uniform* (New York, NY: Duffield & Company, 1923), 110, 124.

² Maj R. C. Bolling to Chief Signal Officer of the Army, letter, subject: Report of Aeronautical Commission, 15 August 1917.

³ Ibid.

⁴ House, *Hearings before the Committee on Military Affairs*, 70th Cong., 1st sess., 1926, 917-999.

⁵ Harry H. Ransom, “The Air Corps Act of 1926: A Study of the Legislative Process” (PhD diss., Princeton University, 1953), 141.

⁶ Dr. Edward O. Purtee, *History of the Army Air Service 1907-1926* (Wright-Patterson AFB, Oh.: Historical Office Executive Secretariat, Air Material Command, 1948), 112.

⁷ Ibid, 112; also, Mitchell, William, *Winged Defense* (New York, NY.: Dover Publications, Inc., 1925), 236; also, “Coordinating Agencies of the Army and Navy Air Services,” *The Congressional Digest*, Vol. IV, no. 7 (April 1925), 223-224. This particular issue of *Congressional Digest* focuses on Aircraft and the National Defense, and includes articles and excerpts of Committee Hearings from the significant players during this controversial period.

⁸ Bernard C. Nalty (ed.), *Winged Shield, Winged Sword: A History of the USAF* (Washington DC.: Air Force History and Museums Programs, 1997), 191.

⁹ Ransom, 144.

Notes

¹⁰ Ransom, 145; Maurer Maurer, *Aviation in the US Army 1919-1939* (Washington DC.: Office of Air Force History, 1987), 41.

¹¹ US War Department. *Report of a Board of Officers Convened to Report upon the New (S-2693) and Curry (H.R.-7925) Bills Which Propose the Creation of an Executive Department of Aeronautics (Menohar Board)* (8 August 1919).

¹² Ransom, 199.

¹³ *The National Defense Act*: Approved 3 June 1916, Act Amended 4 June 1920, section 2 & 13a.

¹⁴ Excellent discussion in Nalty, 97 and Maurer, 72-74.

¹⁵ Ransom, 222-224.

¹⁶ US House. *Select Committee of Inquiry into Operations of the United States Air Services: Hearings on Matters Relating to the Operations of the United States Air Service (Lampert Committee.)* 68th Congress, 1st session, 1925, 1.

¹⁷ Ransom, 232-236.

¹⁸ *Report of President's Aircraft Board (Morrow Board.)*, 30 November 1925, 6-21.

¹⁹ Ransom, 251-274.

²⁰ *Army, Postal and Navy Air Service Laws* (Washington, DC.: Government Printing Office, 1960), 14-24.

²¹ Ibid.

²² Ransom, 340.

²³ Maurer, 296-297 and Nalty, 120-121.

²⁴ US War Department. *Final Report of War Department Special Committee on Army Air Corps (Baker Board)*, (Washington DC: GPO, 18 July 1934), 1.

²⁵ Maurer, 315-322 and Nalty, 125-128.

²⁶ *Baker Board*, 75.

²⁷ Maurer, 325-343.

Bibliography

- “The 1931 Coast Defense Air Exercises.” *United States Naval Institute Proceedings*, Vol. 57, no. 7 (July 1931): [902]
- Army, Postal and Navy Air Service Laws*. Washington, DC.: Government Printing Office, 1960.
- Atkinson, J. L. Boone. “Italian Influence on the Origins of the American Concept of Strategic Bombardment.” *The Airpower Historian*, Vol. IV, no. 3 (July 1957). AFHRA K239.3095-1.
- Bartlett, H. T., Lt Cdr USN. “Mission of the Aircraft With the Fleet.” *Air Power*, Vol. V, no. 1 (May 1919): [15-17].
- Bolling, R. C., Maj., S.O.R.C. Memorandum. To Chief Signal Officer of the Army, Washington, D.C. Subject: Report of Aeronautical Commission, 15 August 1917 (Maxwell AFB, AFHRA: 167404-4).
- Borden, Norman E, Jr. *Air Mail Emergency 1934*. Freeport: The Bond Wheelwright Company, 1968.
- Brune, Lester Hugo. “The Foundations of American Air Power Doctrine, Aviation and National Defense, 1919-1933; A Study of the Relationship Between Force Weapons, Power Concepts, and Foreign Policy.” PhD diss., University of Rochester, 1959.
- Byrd, Martha. *Chennault: Giving Wings to the Tiger*. Tuscaloosa, AL.: University of Alabama Press, 1987.
- Chennault, Claire Lee. *Way of a Fighter*, ed. Robert Hotz. New York, NY.: G.P. Putnam’s Sons, 1949.
- The Combined Bomber Offensive: 1 January to 6 June 1944*. AAFRH-22. Maxwell AFB, AL.: AAF Historical Office, April 1947.
- The Combined Bomber Offensive: April to December 1943*. AAFRH-22. Maxwell AFB, AL.: AAF Historical Office, March 1946.
- The Congressional Digest*. Vol. IV, no. 7 (April 1925): [219-251].
- Copp, DeWitt S. *A Few Great Captains*. New York: Doubleday & Co., 1980.
- Cooling, Benjamin Franklin. *Air Superiority*. Washington DC.: Center for Air Force History, 1994.
- Culver, C. C., Lt Col. To Chief of Air Corps. Letter. Subject: Doctrine of Employing an Aerial Force, 9 June 1928. AFHRA K248.121-1.
- Deptula, David A., “Parallel Warfare: What is it? Where did it Come From? Why is it Important,” in *The Eagle in the Desert*, ed. William Head and Earl H. Tilford, Jr., Westport, CT.: Praeger Publishers, 1996.
- Development of the Long-Range Escort Fighter*. USAF Historical Study No. 136. Maxwell AFB, AL.: USAF Historical Division Research Studies Institute, September 1995.
- Douhet, Giulio. *Command of the Air*. Washington DC: Office of Air Force History, 1983.

- Dunwoody, Halsey, Col., Assistant Chief of Air Service and Commanding Officer Air Service Troops, Paris. Memorandum. To Chief of Air Service. Subject: Report of Colonel Halsey Dunwoody, 11 November 1918. (Maxwell AFB, AFHRA: 167.404-4).
- The Early Operations of the Eighth Air Force and the Origins of Combined Bomber Offensive.* AAFRH-18. Maxwell AFB, AL.: AAF Historical Office, October 1946.
- Edmonds, Lt Col David K., "In Search of High Ground: The Airpower Trinity and the Decisive Potential of Airpower," *Airpower Journal*, Vol. XII, no. 1, Spring 1998.
- "Final Report of Chief of Air Service AEF to the Commander in Chief American Expeditionary Forces." *Air Service Information Circular*, Vol. II, no. 180 (15 February 1921): [23-75].
- Finney, Robert T. *History of the Air Corps Tactical School, 1920–1940.* USAF Historical Study 100. Maxwell AFB, Ala.: USAF Historical Division, Air University, 1955.
- Frankland, Noble. *The Bombing Offensive Against Germany.* London: Faber and Faber, 1965.
- Gauvreau, Emile and Cohen, Lester. *Billy Mitchell: Founder of Our Air Force and Prophet without Honor.* New York, NY.: E.P. Dutton & Co., Inc., 1942.
- Global Engagement: A Vision for the 21st Century Air Force,* Washington DC.: Department of the Air Force.
- Gorrell, Edgar S. "An American Proposal for Strategic Bombing." *The Airpower Historian*, Vol V, no. 2 (April 1958). AFHRA K239.3095-1.
- Greer, Thomas H. *The Development of Air Doctrine in the Army Air Arm, 1917-1941.* USAF Historical Studies 89. Maxwell AFB, Ala.: USAF Historical Division, Air University, 1955.
- Griffin, Dwight D., et. al. *Air Corps Tactical School: The Untold Story.*, Maxwell AFB: Air Command and Staff College, May 1995.
- Hansell, Maj Gen Haywood S. *The Air Plan That Defeated Hitler.* Atlanta: Higgins-McArthur, 1972.
- Hansell, Haywood, Brig Gen. "The Development of the United States Concept of Bombardment Operations." Lecture. Air War College, Maxwell AFB, AL., 19 September 1951, AFHRA K239.716251-76.
- Hurley, Alfred F. *The Aeronautical Ideas of General William Mitchell.* Ann Arbor, Michigan: University Microfilms, Inc., 1961.
- Hurley, Alfred F. *Billy Mitchell.* New York: Franklin Watts, Inc., 1964.
- Keaney, Thomas A. and Eliot A. Cohen. *Gulf War Air Power Survey Summary Report,* Washington D.C., 1993.
- Keller, Colleen M. *Fighter Escorts for Bomber Raids Predicted Using Historical Precedents.* Alexandria, VA.: Center for Naval Analyses, October 1987.
- Komons, Nick A. *Bonfires to Beacons: Federal Civil Aviation Policy Under the Air Commerce Act, 1926-1938.* Washington D.C.: Smithsonian Institution Press, 1989.
- "Legislative and Administrative Activities." *Air Law Review*, Vol. IX, no. 1 (January 1938): [65-73].
- Mantz, Michael R, Lt Col. *The New Sword: A Theory of Space Combat Power* Maxwell AFB, AL.: Air University Press, May 1995.
- Maurer, Maurer. *Aviation in the US Army, 1919-1939.* Washington DC: Office of Air Force History, 1987.

Menohar, Charles T., Maj Gen. "Problems of American Aeronautics." *Air Power*, Vol. V, no. 12 (April 1919): [457].

Mets, David R., Dr. "Some of the Pre World War II Sources of Navy-Air Force Rivalry: A Test of the Allison Decision Theory in a Nonnuclear Environment." Presentation, Twelfth Naval History Symposium, Annapolis, Md., 27 October 1995.

Miller, Samuel Duncan. *An Aerospace Bibliography*. Washington DC: Office of Air Force History, 1986.

Mitchell, William, Brig. Gen. "Air Power vs. Sea Power." *The American Review of Reviews*, March 1921, 273-277.

Mitchell, William, Brig. Gen. "Our Army's Air Service." *The American Review of Reviews*, September 1920, 281-290. Mitchell, William. *Winged Defense*. New York: Dover Publications, Inc., 1925.

Moran, Cyril Godfrey. "Sea-Power: The Senate and the Air." *United States Naval Institute Proceedings (Special Supplement)*, no. 225 (November 1921): [1676(4)-1676(30)].

Nalty, Bernard C. (editor.) *Winged Shield, Winged Sword*. Washington DC: Air Force History and Museums Program, 1997.

The National Defense Act Approved 3 June 1916 (as Amended by Act Approved 4 June 1920.)

A National Security Strategy for a New Century, The White House, May 1997.

New York Times, 14 September 1925.

New York Times, 27 September 1925.

New York Times, 10 January 1931.

New York Times, 12 January 1931.

Patrick, Mason M., Maj Gen., Chief of Air Service. "Military Aircraft and their Use in Warfare." Address. Franklin Institute, Philadelphia, Pa., 17-19 September 1924.

Pearson, Henry Greenleaf. *A Businessman in Uniform: Raynal Cawthorne Bolling*. New York: Duffield and Co., 1923.

Purtee, Edward O. Dr. *History of the Army Air Service 1907-1926*. Wright-Patterson AFB, Oh.: Historical Office Executive Secretariat, Air Material Command, May 1984.

Ransom, Harry H. "The Air Corps Act of 1926: A Study of the Legislative Process." PhD. diss. Princeton University, August 1953.

Report of President's Aircraft Board (Morrow Board.) Washington DC: GPO, 30 November 1925.

Rutowski, Edwin H. *The Politics of Military Aviation Procurement*. Ohio State University Press, 1966.

Shiner, John F. *Foulois and the US Army Air Corps, 1931-1935*. Washington DC: Office of Air Force History, 1983.

Studley, Barrett, Lt. USN. "Bombing Planes or Battleships." *The North American Review*, Vol. 227, no. 6 (June 1929):[727-736].

Tate, James P. *The Army and its Air Corps: A Study of the Evolution of the Army Policy Towards Aviation, 1919-1941*. Department of History, Indiana University, 1976.

The United States Strategic Bombing Surveys. Maxwell AFB: Air University, October 1987

- US House. *Committee on Military Affairs*. 68th Congress, 2nd session, 8 January to 17 February 1925.
- US House. *Select Committee of Inquiry into Operations of the United States Air Services: Hearings on Matters Relating to the Operations of the United States Air Service (Lampert Committee.)* 68th Congress, 1st session, 1925.
- US House. *Proposed Coordination Between the Army and Navy Air Service: Hearings Before the Committee on Naval Affairs*. April 1924.
- US War Department. *Report of a Board of Officers Convened to Report upon the New (S-2693) and Curry (H.R.-7925) Bills Which Propose the Creation of an Executive Department of Aeronautics (Menohar Board.)* 8 August 1919.
- US War Department. *Final Report of War Department Special Committee on Army Air Corps (Baker Board.)* Washington DC: GPO, 18 July 1934.
- War Department Press Release, Jan 9, 1931. AFHRA 168.3942-191.
- Webster's Third New International Dictionary*. Merriam-Webster, Incorporated, 1993.
- Wheeler, Gerald E. "Mitchell, Moffet and Airpower." *The Air Power Historian* VIII, no. 2 (April 1961). AFHRA K239.3055-1 v. 8-2.
- "When War-Planes Flame and Audiences Gasp." *The Literary Digest*, Vol. XCV, no. 7 (12 November 1925): [36-38].
- Wheeler, *Gerald E. A Sailor's Life*. Washington DC: Naval History Division, 1974.
- Wilson, Donald, Maj Gen. To Air University Commandant. Letter. Subject: Information on Air Corps Tactical School, 2 Nov 1955. AFHRA K245.01-2.

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